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10/816,274

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Eitaro Morita

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EXAMINER

MCAVOY, ELLEN M

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1797

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/816,274	Applicant(s) MORITA, EITARO	
	Examiner Ellen M. McAvoy	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,5 and 6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5 and 6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al Sato et al (6,617,286) in combination with Watts et al (6,613,722) and Sougawa et al (6,147,035).

Applicant's arguments filed 22 December 2008 have been fully considered but they are not persuasive. As previously set forth, Sato et al ["Sato"] disclose a lubricating oil composition for continuously variable transmissions which comprises a lubricating base oil made of mineral oil and/or a synthetic oil formulated with a phosphorus-based wear preventive additive (A), a metal detergent additive (B) and an ashless dispersant additive (C). Sato teaches that the base oil component has a kinematic viscosity ranging from 0.5 to 200 mm²/s at 100°C, preferably 2-25 mm²/s at 100°C, and that mixtures of mineral oils and synthetic oils may be used in combination. See column 3, line 43 to column 4, line 43. The phosphorus-containing wear preventive used as component (A) includes phosphate esters and phosphite esters which may contain sulfur atoms. Sato teaches that the amount of the additive is within the range of 200-500 ppm as phosphorus (P) based on the total weight of the composition. See column 4, lines 48-63. The examiner is of the position that this meets the limitations of both components (C) and (F) of the claims. The metal detergent additive (B) includes overbased calcium salicylates having a TBN ranging from 10-450 mg KOH/g. Sato teaches that the amount of metal detergent is preferably in the range of

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100-1000 ppm as a metal content based on the total weight of the composition. The ashless dispersant additive (C) includes boron-containing succinimides. See column 5, lines 35-61. Sato teaches that the boron-containing succinimide includes those obtained by treating a mono or a bis product succinimide with a boron compound. Suitable succinimides include polyalkyl- or polyalkenyl-succinimides wherein the polyalkyl(alkenyl) group is prepared from polymerizing olefins having 2-8 carbon atoms. Sato does not disclose a molecular weight range or carbon chain length for the polyolefin substituent and applicant claims that this substituent contains from 40 to 400 carbon atoms. However, as evidenced by Sougawa et al [“Sougawa”], such borated bis-succinimides are conventional in the lubricant art as ashless dispersants. Sougawa discloses lubricating oil compositions comprising a major amount of a base oil, an overbased metal salicylate detergent, antioxidants, and a polyalkenylsuccinimide ashless dispersant. The succinimide dispersant may be borated and/or non-borated and may be a bis-succinimide as set forth in column 10, line 46 to column 11, line 38. In formula (X) the polyalkenyl substituents R^{24} and R^{25} are each an olefin oligomer residual group having 30 or more carbon atoms, preferably 40 or more carbon atoms, which may be prepared from an olefin having 2-6 carbon atoms. Thus the examiner is of the position that the ashless dispersant succinimide components of Sougawa meet the limitations of components (E) and (G) of the claims since both borated and non-borated bis-succinimides having an alkenyl substituent of greater than 40 carbon atoms may be used as the ashless dispersant component. Sato allows for the addition of other additives to the composition including non-borated imide ashless dispersants. See column 6. Watts et al [“Watts”] is added to teach that the bis-succinimides of applicant’s claims, as component (D), are well-known in the art as additives to lubricating oil compositions which are suitable for use in

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continuously variable transmissions. The non-borated succinimide component is set forth in column 10 wherein substituent groups R_7 are alkyl groups containing 6-30 carbon atoms. Thus, the examiner maintains the position that the compositions of Sato in combination with Sougawa and Watts clearly meet the limitations of the above rejected claims since all of the components are conventional in lubricating oil compositions.

In response applicant amended the claims to include that component (E) is now a boron-containing ashless dispersant which is represented by formula (6) wherein hydrocarbyl substituents R^{22} and R^{23} are each independently an alkyl or alkenyl group having 40 to 400 carbon atoms. Applicant also amended the claims to include component (G), a boron-free ashless dispersant also represented by formula (6). However, as discussed above, both borated and non-borated bis-succinimide ashless dispersants having the claimed hydrocarbon-substituent chain length are well known in the art as evidenced by Sougawa. The examiner is of the position that it would have been obvious to the skilled lubricant oil formulator to have added both the borated and non-borated bis-succinimide ashless dispersants of Sougawa to the lubricant compositions of Sato if their known imparted properties were so desired. Sato clearly provides motivation for the addition in column 5, lines 35-55, and in column 6, lines 37-39.

Claim Rejections - 35 USC § 103

Claims 1, 2, 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogano et al (6,638,897) alone, or in view of Watts et al (6,613,722) and Sougawa et al (6,147,035).

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Applicant's arguments filed 22 December 2008 have been fully considered but they are not persuasive. Watts et al ["Watts"] and Sougawa et al ["Sougawa"] are relied on as outlined above. As previously set forth, Ogano et al ["Ogano"] disclose a lubricating oil composition for internal combustion engines comprising a base oil composed of a mineral oil, synthetic oil, or mixtures thereof, incorporated with (A) an overbased calcium salicylate having a TBN in the range of 30-100 mgKOH/g in an amount of 0.05 to 0.90 weight % as calcium, and (B) a succinimide selected from the group consisting of (1) a boron-containing succinimide having a weight-average molecular weight of 3,000 or less at 0.04 weight % or less as boron, and (2) a non-borated succinimide having a weight average molecular weight of 3,000 or less at 0.01 to 0.25 weight % as nitrogen, and (3) mixtures thereof. See column 3, lines 7-53. Ogano teaches that both mono- or bis-succinimides, represented by formula (I) and (II) may be added to the composition. See column 5, lines 3-28. Ogano teaches that the base oil may be used either individually or in combination and the oil(s) have a kinematic viscosity in the range of 2 to 20 mm²/s at 100°C. Ogano allows for the addition of other additives to the compositions that include phosphoric acid esters and phosphorous acid esters as antiwear agents which may be used in amounts of 0.1 to 5 % by weight. See column 7, lines 36-41. Thus the examiner maintains the position that all of the components of applicant's claims are taught by Ogano.

In response applicant amended the claims to include additional components and argues that Ogano does not teach or suggest the use of three types of succinimide compounds represented by formulas (4) and (6) as components (D), (E) and (G). This is not deemed to be persuasive because succinimide compounds (4) and (6) are bis-succinimides and Ogano clearly teaches bis-succinimides. The essential difference between succinimide components (4) and (6)

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of the claims is the length of the hydrocarbyl substituent of 8-18 carbon atoms in formula (4) versus a hydrocarbyl substituent of 40-400 carbon atoms in formula (6). However, Ogano broadly teaches that the weight average molecular weight for the succinimide compounds is 3000 or less which, the examiner is of the position, meets the limitations of both carbon chain length ranges for the hydrocarbyl substituents. However, Watts and Sougawa are relied on as outlined above and are added to specifically teach borated and non-borated bis-succinimides which clearly meet the limitations of the three different succinimide components (D), (E) and (G) of applicant's claims. The examiner is of the position that it would have been obvious to the skilled lubricant oil formulator that the borated and non-borated bis-succinimide ashless dispersants of Ogano have the conventional carbon chain lengths of 8-18 and 40-400 as evidenced by the additional prior art references to Watts and Sougawa.

Claim Rejections - 35 USC § 103

Claims 1, 2, 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bovington et al (6,720,293) in combination with Watts et al (6,613,722) and Sougawa et al (6,147,035).

Applicant's arguments filed 22 December 2008 have been fully considered but they are not persuasive. Watts et al ["Watts"] and Sougawa et al ["Sougawa"] are relied on as outlined above. As previously set forth, Bovington et al ["Bovington"] disclose a low viscosity lubricating oil composition having no more than 0.16 mass % of phosphorus, preferably less than 0.09 mass % phosphorus, which comprises a lubricating oil basestock and, as additives, (a) from 1-10 mass % of a dispersant including both borated and non-borated succinimides, (b) 0.05 to 0.6

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mass % of elemental calcium derived from one or more detergents, and optional additives including zinc dihydrocarbyl dithiophosphate, an antioxidant, a pour point depressant, and a viscosity modifier. See column 1. Bovington teaches that usually the dispersants contain from about 0.01 to 0.1 mass % boron, as elemental boron. See column 5. Bovington teaches that the detergent component can have a TBN in the range of 15 to 600, and that suitable detergents include calcium salicylates. See column 6. The examiner maintains the position that the compositions of Bovington meet the limitations of the above rejected claims.

In response applicant amended the claims to include additional components and argues that Bovington does not teach or suggest the use of three types of succinimide compounds represented by formulas (4) and (6) as components (D), (E) and (G). This is not deemed to be persuasive because succinimide compounds (4) and (6) are bis-succinimides and Bovington clearly teaches bis-succinimides. As set forth above, the essential difference between succinimide components (4) and (6) of the claims is the length of the hydrocarbyl substituent of 8-18 carbon atoms in formula (4) versus a hydrocarbyl substituent of 40-400 carbon atoms in formula (6). However, Bovington broadly teaches that the number average molecular weight for the hydrocarbyl substituent of succinimide compounds may be from about 300 to 20,000 which corresponds to a carbon chain length of approximately 20 to 1400 which, the examiner is of the position, meets the limitations of both carbon chain length ranges for the hydrocarbyl substituents. However, Watts and Sougawa are relied on as outlined above and are added to specifically teach borated and non-borated bis-succinimides which clearly meet the limitations of the three different succinimide components (D), (E) and (G) of applicant's claims. The examiner is of the position that it would have been obvious to the skilled lubricant oil formulator that the

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borated and non-borated bis-succinimide ashless dispersants of Bovington have the conventional carbon chain lengths of 8-18 and 40-400 as evidenced by the additional prior art references to Watts and Sougawa.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ho et al (6,001,780) discloses lubricating oil compositions comprising a major amount of a base oil and both an untreated polyalkylene or polyalkenyl succinimide dispersant and a borated polyalkylene or polyalkenyl succinimide dispersant.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ellen M. McAvoy whose telephone number is (571) 272-1451.

The examiner can normally be reached on M-F (7:30-5:00) with alt. Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ellen M McAvoy/
Primary Examiner
Art Unit 1797

EMcAvoy
April 8, 2009